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gathered in the morning. Thus an important function of the leaves is positively established. This function consists in facilitating the formation of proteids in all parts of the plants by the assimilation of nitrates, yielding thereby amido-compounds which are in all probability better sources for proteid formation than nitrates, in organs poorer in sugar and with a less energetic respiration process. A great advantage is thus gained for the stems, roots and fruits, in which the conditions for nitrate assimilation are less favorable than in the leaves. These amido-compounds produced are either asparagin, which, as I have shown in a former article, can be formed synthetically from ammonium salts as well as from nitrates, or they are the decomposition products of proteids formed in the assimilation of nitrates."

A BROADER STUDY OF LOCAL FLORAS.

It is a hopeful sign of a broadening conception of the work of the local botanist that we see in a recent plant catalogue issued by Professor McClatchie and entitled the 'Seedless Plants of Southern California.' We have so long been familiar with plant catalogues which include nothing more than the flowering plants, often innocently regarded by their compilers as quite completely representing the flora, that it is refreshing to find one in which the flowerless plants are enumerated, while the flower-bearing species are omitted.

Not content with such a departure from time-honored custom, the author prefaces his work with a descriptive synopsis of the classes and orders and freely introduces handy artificial keys to the genera, thus departing still more from the old-style treatment. The synopsis of the plant groups shows that the author has been more than a mere cataloguer of forms. He has been a student of the groups of which the species are representatives. Accordingly

we find that the sequence and limitations of classes and orders are considerably different from those of the ordinary text-books. For this the author has been criticized by some botanists, but we cannot agree with these critics. It will be far better for botany when local students put more rather than less thought into their work, and, instead of deprecating their attempts to make improvements in the general system, we should rather welcome them as hopeful indications that the day of the old-time compiler of bare lists of species, following blindly the prevailing system, is drawing to a close.

In the smaller matters, also, this list is strictly modern, as in the consistent use of metric units in all measurements, the decapitalization of all specific names, the use of trinomials (for varieties), the omission of the comma after the specific name, and the double citation of authorities in the case of species which have been removed from the genera in which they were first described.

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NOTES ON INORGANIC CHEMISTRY.

THE *Jahrbuch für Mineralogie* contains further investigations, by C. Doelter, on the permeability of minerals for the X-rays. Phenacite (silicate of glucinum) is almost perfectly transparent, even more so than boric acid. Olivine and zoisite are, like calcite, almost opaque; vesuvianite slightly less so. Diopside and hiddenite, like topaz, are half transparent. Spheue is almost opaque, sapphire almost transparent, the ruby hardly less so. A close relationship appears between the atomic weights and the permeability to the X-rays.

ACCORDING to L. Davy in the *Comptes Rendus*, all authors who have studied the ancient working of tin in the west of Eu-

rope admit that it was far anterior to the occupation of the country by the Romans, and think that the mines of Abbaretz-Nozay were abandoned by the Gauls about the date of the Roman invasion.

IN a pamphlet entitled *Gold Growth* (Cincinnati, The Robert Clarke Co.), Mr. John Jacob Wagner asks: "Does nature transmute silver into gold?" "If it does, can we derive and utilize such hints, from nature's operation, as will enable us to attain artificial transmutation?" The former question he answers in the affirmative in the pamphlet before us; to the latter he promises a reply 'in due time.' The basis of the author's argument is that gold in nature is always found associated with silver, and the ratio of gold to silver is not uniform. If silver never occurs without some gold, it follows that the gold has grown from the silver, and the varying proportions found in different mines are due to the length of time the growth has been going on. Hence in the older rocks the proportion of gold to silver is greater than in the later rocks. Pure gold can be separated from silver alloy; but the 'fine silver' resulting invariably contains gold. The inference is that the silver is 'growing' into gold. This pamphlet belongs to a class of writings by no means rare, the efforts of laymen to clear up facts and theories which are far from clear to specialists who have devoted their lives to them. Granted that the premises of the writer are true, his deductions would have no weight to a chemist. He finds not merely silver and gold occurring together, but many other elements always associated with each other. If gold 'grows' from silver, why not potassium from sodium, or bromine from chlorine, etc.? The only difficulty with the theory is that at present there is absolutely no evidence of facts to support it, and the wisest chemists hesitate to philosophize on the problem of the genesis of the elements.

It may be questioned if books, such as that before us, have any value; certainly they have not from a scientific standpoint.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

THE DEDICATION OF THE YERKES ASTRONOMICAL OBSERVATORY.

THE University of Chicago has made very complete arrangements for exercises in connection with the dedication of the Yerkes Astronomical Observatory, to continue throughout the present week. The arrangements are as follows:

OCTOBER 18, MONDAY.

2:30 p. m. Fourth Annual Meeting of the Board of Editors of the *Astrophysical Journal*.

4:30 p. m. Opening session of conferences.

Informal talks on recent investigations, including:

Assistant Professor F. L. O. Wadsworth (Astrophysicist, Yerkes Observatory), on the application of Diffraction Phenomena to Astronomical and Astrophysical Measurements.

Dr. G. F. Hull (Professor of Physics, Colby University), on Electric Radiation.

7:30 p. m. Assistant Professor Wadsworth will demonstrate with the 40-inch Yerkes telescope the application of interference methods to astronomical measurements.

Professor Burnham will show selected double stars with the 40-inch telescope.

OCTOBER 19, TUESDAY.

9:00 a. m. Second session of conferences.

Dr. Henry Crew (Professor of Physics, Northwestern University), on the Source of the Characteristic Spectrum of the Metallic Arc.

Dr. Henri Deslandres (Astrophysicist, Paris Observatory), on a subject to be announced later.

Dr. W. J. Humphreys (University of Virginia), on the effect of Pressure on Wave-length.

Professor James E. Keeler (Director of the Allegheny Observatory), on the Spectra of Stars of Secchi's Third Type.

Professor H. C. Lord (Director of the Emerson McMillin Observatory, Ohio State University), on Researches in Stellar Spectrography.

Professor Carl Runge (Director of the Spectroscopic Laboratory, Technische Hochschule, Hannover), on Oxygen in the Sun.